

REMARKS

Claims 1-77 are pending. Claims 39, 40, 42-54, 56-66, and 73-76 have been amended for consistency and clarity.

Claims 39-62 and 73-77 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Pat. No. 5,764,567 to Parkin, and by U.S. Pat. No. 6,233,172 to Chen et al. This rejection respectfully is traversed.

Claim 39 recites a method for manufacturing a magnetic memory element comprising, *inter alia*, “forming a sense layer adjacent a side of the tunnel barrier layer opposite the pinned layer, said sense layer having a first ferromagnetic layer and a second ferromagnetic layer mutually separated by a conductive spacer layer.”

Parkin discloses a magnetic memory element in which “thin nonferromagnetic layer 31 is introduced at the interface between the top of the *tunnel barrier* and the *free ferromagnetic layer*.” Parkin does not teach forming “a sense layer adjacent a side of the tunnel barrier layer opposite the pinned layer, said sense layer having a first ferromagnetic layer and a second ferromagnetic layer mutually separated by a conductive spacer layer 31.” Instead, spacer layer 31 separates the sense layer from the tunnel barrier layer. Parkin does not anticipate claim 39. Claims 40-57 depend directly or indirectly from claim 39, and are patentable over Parkin for at least the same reasons.

Chen et al. discloses a magnetic element having sense layers 30, 32 separated from fixed layer 28 by an insulative spacer layer 16 made of alumina, for example. Chen et al. does not teach forming a sense layer having “a first ferromagnetic layer and a second ferromagnetic layer mutually separated by a conductive spacer layer.” Chen et al. does not anticipate claim 39. Claims 40-57 depend directly or indirectly from claim 39, and are patentable over Chen et al. for at least the same reasons.

Claim 58 recites a method for manufacturing a magnetic memory element using a method comprising, *inter alia*, “forming a sense layer, said sense layer having a first

ferromagnetic layer and a second ferromagnetic layer mutually separated by a conductive spacer layer,” and “forming a tunnel barrier layer adjacent the sense layer.”

Parkin discloses memory elements in which spacer layer 31 separates the sense layer from the tunnel barrier layer. Parkin does not teach forming a “sense layer having a first ferromagnetic layer and a second ferromagnetic layer mutually separated by a conductive spacer layer.” Claim 58 is patentable over Parkin. Claims 59-62 depend directly from claim 58, and are patentable over Parkin for at least the same reasons.

Chen et al. discloses magnetic memory elements having sense layers 30, 32 separated from fixed layer 28 by insulative spacer layer 16. Chen et al. does not teach forming a sense layer having “a first ferromagnetic layer and a second ferromagnetic layer mutually separated by a conductive spacer layer.” Chen et al. does not anticipate claim 58. Claims 59-62 depend directly from claim 58, and are patentable over Chen et al. for at least the same reasons.

Claim 73 recites a method for manufacturing a magnetic memory element comprising, *inter alia*, “forming a sense layer adjacent the conductive layer, said sense layer having a first ferromagnetic layer and a second ferromagnetic layer mutually separated by a conductive spacer layer.”

Parkin discloses forming a magnetic memory element with a sense layer separated from a tunnel barrier layer by a layer 31. Parkin does not anticipate the manufacturing method recited in claim 73 including “forming a sense layer on a side of the conductive layer opposite the pinned layer, said sense layer having a first ferromagnetic layer and a second ferromagnetic layer mutually separated by a conductive spacer layer.” Claim 73 is patentable over Parkin. Claims 74-77 depend directly from claim 73 and are patentable over Parkin for at least the same reasons.

Chen et al. discloses a magnetic element having sense layers 30, 32 separated from fixed layer 28 by insulative spacer layer 16. Chen et al. does not teach forming a

sense layer having “a first ferromagnetic layer and a second ferromagnetic layer mutually separated by a conductive spacer layer.” Chen et al. does not anticipate claim 72. Claims 74-77 depend directly from claim 73 and are patentable over Chen et al. for at least the same reasons.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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